Amendment to the Claims:

Please amend the claims as follows:

1. (Original) A culture of morphotes derived from mammalian tissues.
2. (Original) The culture of morphotes of claim 1, wherein the morphotes exhibit tissue-level multicellular self-organization when cultured in vitro.
3. (Original) The culture of morphotes of claim 2, wherein the morphotes exhibit sheet-like tissue-level multicellular self-organization cultured in vitro.
4. (Original) The culture of morphotes of claim 2, wherein the morphotes exhibit capillary-like tissue-level multicellular self-organization when cultured in vitro.
5. (Original) The culture of morphotes of claim 2, wherein the morphotes exhibit trabecular (spongy) bone-like tissue-level multicellular self-organization when cultured in vitro.
6. (Original) The culture of claim 1, wherein three or more morphotes connect or interconnect into networks of varying densities, scales, or dimensions that tessellate triangular, quadrilateral, and polygonal areas or shapes that contain no morphote cells.
7. (Original) A therapeutic vaccine to treat mammalian disease, produced from a culture of morphotes derived from mammalian tissues, wherein said morphotes exhibit multicellular self-organization when cultured in vitro.
8. (Original) The vaccine of claim 7, which is an autologous vaccine.
9. (Original) The vaccine of claim 8, which is an allogenic vaccine.
10. (Currently amended) The vaccine of ~~any of claims 7-9~~ claim 7, wherein the vaccine is a vaccine used to treat mammalian cancer.
11. (Currently amended) The vaccine of ~~any of claims 7-9~~ claim 7, wherein the vaccine is a vaccine used to treat AIDS.
12. (Currently amended) The vaccine of ~~any of claims 7-9~~ claim 7, wherein the vaccine is a vaccine used to treat cellular or tissue degradation associated with the aging process.
13. (Original) A method for screening therapeutic modalities for efficacy against mammalian disease states that are associated with infection with morphotes,

comprising

a) exposing a culture of morphotes derived from diseased mammalian tissues to a candidate therapy, and

b) culturing the morphotes, while exposed to the therapy, for a time sufficient to determine whether the morphotes are inhibited or killed by the candidate therapy, inhibition or killing being an indicator of therapeutic efficacy of the therapy.

14. (Original) The method of claim 13, wherein the therapy comprises administration of a drug.

15. (Original) The method of claim 13, wherein the therapy comprises the use of radiofrequency or radiological exposure.

16. (Original) A method for manufacturing an implantable biomaterial scaffold comprising

(a) culturing morphotes to form a matrix in the form of a sheet, fibrous network or sponge,

(b) rendering the morphotes non-vital after the matrix is formed, to provide an implantable biomaterial scaffold,

(c) optionally removing the non-vital morphotes from the implantable biomaterial scaffold.

17. (Original) The method of claim 16, wherein the morphotes to be cultured are unmodified isolates expressing at least one structural material selected from the group consisting of bioelastomers, elastomeric proteins and biopolymers.

18. (Original) The method of claim 16, wherein the morphotes to be cultured are genetically modified to express at least one structural material selected from the group consisting of bioelastomers, elastomeric proteins, biopolymers, spider silk, and polyesters.

19. (Currently amended) The method of ~~any of claims 16-18~~ claim 16, wherein the morphotes are obtained from a patient into whom the implantable biomaterial scaffold will be implanted.

20. (Currently amended) The method of ~~any of claims 16-19~~ claim 16, wherein the morphotes are cultured in a controlled pattern to provide an implantable biomaterial scaffold of a pre-determined shape.

21. (Original) A process for producing a microarray or biochip to aid in the diagnosis of mammalian diseases associated with morphote infections,

comprising

(a) isolating genomic DNA from a candidate morphote or morphotes,

(b) deriving target DNA, cDNA, or oligonucleotides from this morphote genomic DNA,

(c) immobilizing said target DNA, cDNA, or oligonucleotides in an orderly array on suitably rigid, non-chemically reactive support.

22. (Original) The method of claim 21, wherein the mammalian disease is cancer.

23. (Original) The method of claim 21, wherein the mammalian disease is AIDS.

24. (Original) A method for treating waste comprising

(a) obtaining morphotes which produce one or more enzymes capable of breaking down a waste material to be treated,

(b) applying the multicellular culture of morphotes to the waste to be treated,

(c) allowing the multicellular culture of morphotes to remain in contact with the waste for a time sufficient to at least partly break down the waste.

25. (Original) The method of claim 24, comprising as an additional step between step (a) and step (b):

(a') culturing the morphotes to produce a multicellular culture of morphotes.

26. (Original) The method of claim 25, wherein the multicellular culture of morphotes is in the form of a mat.

27. (Original) The method of claim 24, wherein morphotes are applied to the waste material in a unicellular state and are subsequently allowed to form multicellular meshes or mats in the waste material.

28. (Currently amended) The method of ~~any of claims 24-27~~ claim 24, wherein the waste is untreated sewerage.

29. (Currently amended) The method of ~~any of claim, 24-27~~ claim 24, wherein the waste is a toxic chemical.

30. (Original) A method for detecting impending disease in a patient prior to clinical manifestation of the disease, comprising detecting the presence in the patient's tissues of morphotes associated with the presence or progression of

the disease.

31 (Original) The method of claim 30, wherein the detection is carried out using morphote-specific antibodies.

32. (Original) The method of claim 30, wherein the presence of morphotes is detected by detecting the presence of a morphote-specific protein in the patient's tissues.

33. (Currently amended) The method of ~~any of claims 30-32~~ claim 30, wherein the disease is cancer.

34. (Currently amended) The method of ~~any of claims 30-32~~ claim 30, wherein the disease is AIDS.

35. (Original) A method for expressing a gene of interest in a morphote mesh or tissue-like pattern of distribution, comprising

(a) inserting a gene of interest into a morphote to provide a recombinant morphote expressing the gene of interest,

(b) culturing the recombinant morphote in a mesh or tissue-like structure, wherein the gene of interest is expressed by the morphote in the mesh or tissue-like structure.

36. (Original) A method to promote healing of a wound or other tissue damage comprising

(a) culturing morphotes to form a matrix in the form of a sheet, fibrous network or sponge,

(b) applying the matrix to a wound or damaged tissue,

(c) maintaining contact between the matrix and the wound or damaged tissue for a time sufficient to promote the healing of the wound or damaged tissue.

37. (Original) The method of claim 36, wherein the morphotes are rendered non-vital after the matrix is formed, and before the matrix is applied.

38. (Currently amended) The method of ~~either~~ claim 36 ~~or 37~~ wherein the morphotes are recombinant morphotes that express a growth-promoting substance selected from the group consisting of cytokines, growth hormones, growth factors, or other growth-promoting proteins.